Ants Caught on Wind Traps in Pineapple Fields on Oahu[1]

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Two sets of quantitative data on the flight of the alate sex forms of various species of ants into pineapple fields in two climatically different sections of Oahu have been obtained by means of wind traps set along the windward margins of the fields. The first set, secured in conjunction with a thrips population survey, was taken at Locations 1 and 2 in two plant crop pineapple fields situated in the comparatively wet uplands between the Waikakalaua and Kipapa gulches, during the latter half of 1935. Location 1 was in a field adjacent to the Kipapa School while Location 2 was approximately 1.2 miles north of this field. The second set, collected in connection with fire ant studies, was taken at Location 3 in another plant crop pineapple field lying west of Camp 84 in the dry Kunia section, during 1937 and 1938.

The traps consisted of tanglefoot pasted onto sheets of thick wrapping paper which were attached to 24-inch wooden frames. Each of the traps was then fastened onto the baffle plates of a Fulton-Chamberlin type of wind trap (Jour. Econ. Ent. 24(3): 557–561, June 1931), set up at a height of 6 feet above the ground. New traps were substituted when the old ones were taken down for examination.

The three traps at Location 1 were put up at points 0.45 and 0.1 mile apart. One of them was operating on May 17, while all three were put into operation on May 20, 1935. After two months, two of them were erected at points about 0.5 mile apart along the periphery of the field at Location 2. The traps in this place were started on July 18, 1935. At Location 3 the three traps were established at intervals of 0.11 and 0.27 mile apart. Only two of the traps were started on December 8 but all were put into operation from December 21, 1937, to the end of 1938.

The land windward of Location 1 consisted of Kipapa gulch and grass-covered abandoned pineapple fields, and underwent no significant topographical changes during the time the traps were in operation here. The field immediately windward of Location 2 was in the process of preparation for planting when the traps were set up. It was plowed once in June, twice in August and finally planted in pineapples during the latter part of September and the early part of October. Aside from this field the more remote, windward tract

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TABLE 1. NUMBERS OF MALES AND FEMALES OF VARIOUS ANT SPECIES CAUGHT ON WIND TRAPS AT LOCATION 1

Traps changed	Ant species number[a]															
	1	2	3		4		5	7		10	11		13		14	
	F[b]	F	M[c]	F	M	F	M	M	F	F	M	F	M	F	M	F
1935																
May 20					1										7	
22[d]					2											
25		1							1							
June 3					9											
8		1			18											
13		1			1				1		4		1			
19		2	2	5	403			2				1	1		2	
28		4		3	344			3	9	1						
July 5		4	1	3	96			6	37			12	2			
10		2	4	3	146		4	7	13				4	1	1	
18	3	3	4	6	5		1	1	37			10	6		57	21
24		1			1			2	11		5	17				
31		2	14	6	17				2			3	1			
Aug. 8		8		2					12			2				
14		12	1		5				10						2	
22		7	2					2	32			8			7	2
31		13							10			1				
Sept. 6	1	2	1	2				2	9		2	4			1	
12																
18	1	1		1				3	4		7	2			7	2
27		2		1					3						54	5

TABLE 1.—(*Continued*)

Traps changed	Ant species number[a]															
	1	2	3		4		5	7		10	11		13		14	
	F[b]	F	M[c]	F	M	F	M	M	F	F	M	F	M	F	M	F
1935																
Oct. 4		1		1											44	3
11									1							
18				1								1				
25									1			3				
Nov. 1		1										1				
8		1					2									
22		1					3		2			1			1	
29		5											2			
Dec. 6									1							
13		1							1			1				1
20													9			
30		3		3	1	2			1				2			
1936																
Jan. 3																

[a] See footnote, Table 4, for speciation of ants.
[b] Female.
[c] Male.
[d] Data for dates from May 22 to July 28, inclusive, are the totals of 3 traps while those for all other dates are the results from a single trap.

TABLE 2. NUMBERS OF MALES AND FEMALES OF VARIOUS ANT SPECIES CAUGHT ON 2 WIND TRAPS AT LOCATION 2

Traps changed	Ant species number[a]															
	1	2	3		4		5	7		8	9	11	13		14	
	F[b]	F	M[c]	F	M	F	M	M	F	F	F	F	M	F	M	F
1935																
July 24		2	2		1			1	10			3				
31		9	2	4	71			4	15			3	1			
Aug. 8		21	8	5	1				13							
14		66	4	6	3				6			4				
22		61	84	8	1				33		1	7				
31		73	61	17	4				10				19	1		
Sept. 6		23	74	15	18	5			6	1		1			9	
12	2	9	17	4	1				4							
18	2	18	4	5	2		1		8	2					8	5
27		10	3	3				1	5							1
Oct. 4		3	6	3					4			1	5			
11		1		1					2		1					
18		4	34	2		1		1	3				2			
25		2	15	3					3				18			
Nov. 1		6							2				1			
8		1							5							
22		1							7				13		1	
29		1							4				7			1
Dec. 6																
13		3	2	3	1				2				50			
20	4								1				4			
30	13					1			1				95			
1936																
Jan. 3																

[a] See footnote, Table 4, for speciation of ants.
[b] Female.
[c] Male.

TABLE 3. NUMBERS OF MALES AND FEMALES OF VARIOUS ANT SPECIES CAUGHT ON 3 WIND TRAPS AT LOCATION 3, DURING 1937

Traps changed	Ant species number[a]										
	2	3		4		5	7		11	12	13
	F[b]	M[c]	F	M	F	M	M	F	F	M	M
1936											
Dec. 14[d]	1										
21[d]	1										
1937											
Jan. 3	9										
11	10					1					
Feb. 2	5										
12											1
26				1		1					
Mar. 12											
26											
Apr. 2											
16											
30	3										
May 12	3			14							
28	4			8				3			
June 10	19			138				5			
25	1			52		2		2	1		
July 9	58		4	680		1		25	5		
23	105	2	2	440		3		28	21		
Aug. 6	42	804	21	505		3		30	8		
20	67	2	2	48		4		45	15		
Sept. 8	24			43		6		8	9		
17	15	3	2	6		8	1	10	1		
30	10		2	6		11		4			
Oct. 8	2			1					1	1	
21	9	5		18		30		3			1
Nov. 2	4	1	2			4		6			
15	1				1	2		6			
Dec. 1	10		1			7		1			
13[e]						1					
27	4							1			

[a] See footnote, Table 4, for speciation of ants.
[b] Female.
[c] Male.
[d] Total of only 2 traps.
[e] All traps were damaged by storm.

TABLE 4. NUMBERS OF MALES AND FEMALES OF VARIOUS ANT SPECIES CAUGHT ON 3 WIND TRAPS AT LOCATION 3, DURING 1938

Traps changed	Ant species number[a]															
	1	2	3		4		5	6	7		8	11	13		14	
	F[b]	F	M[c]	F	M	F	M	F	M	F	F	F	M	F	M	F
1938																
Jan. 10		3					3									
25		3					1									
Feb. 8					12	4	1									
21	1	8						1								
Mar. 9																
31					190	2										
Apr. 8																
26		27			39											
May 10		46			95							2				
20		7	4		127					1		1				
June 3		38			1520		7			3		3				
17		42	1	1	16			2	1	5					7	8
21[d]		2	297				1									
July 1		39	16	2	75		1			2		1				
15		55	4		462		7		1	20		2				
29		62	1	4	50		1			13		11				
Aug. 18		91	234		454	1	4		1	82		3				
Sept. 9		37	85	4	16		4			6						
23	1	45	2	2			13		1	20						
Oct. 10		73	90	10	5		14		1	24						
21[e]		10	97	2	1		2			3						
Nov. 10		7					1	1		1						
25		5			2	1				1						
Dec. 8		20		3	1		12			3	1			1		
22		2					3			1			1			

of land consisted of undisturbed forest vegetation. The land windward of Location 3 consisted of an adjacent narrow strip of sugar cane field with cultivated pineapple fields farther away. During the time the traps were being operated here, the cane was harvested in the latter part of November 1937, and the pineapple fields were disced down in the early part of September 1938.

The data obtained at Locations 1 and 2 in 1935 are presented in Tables 1 and 2 respectively, and those at Location 3 during 1937 and 1938 in Tables 3 and 4. From the records it appears that the flights of the majority of the species of ants which were caught take place during the summer and fall. Except for *Strumigenys lewisi* and *Epitritus wheeleri,* all of the species which were caught have been recorded as inhabiting pineapple fields.

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[a] Ant species No. 1 : *Ponera gleadowi* Forel race *decipiens* Forel
2 : *Ponera kalakauae* Forel
3 : *Ponera perkinsi* Forel
4 : *Pheidole megacephala* (Fabr.)
5 : *Solenopsis geminata* Fabr. race *rufa* Jerdon
6 : *Monomorium minutum* Mayr var. *liliuokalanii* Forel
7 : *Cardiocondyla nuda* Mayr var. *minutior* Forel
8 : *Cardiocondyla wroughtoni* Forel var. *hawaiiensis* Forel
9 : *Strumigenys lewisi* Cameron
10 : *Epitritus wheeleri* Donisthorpe
11 : *Plagiolepis mactavishi* Wheeler
12 : *Camponotus* (*Tanaemyrmex*) *variegatus* (Fabr.) var. *hawaiiensis* Forel
13 : *Paratrechina* (*Nylanderia*) *bourbonica* Forel var. *hawaiiensis* Forel
14 : *Paratrechina* (*Nylanderia*) *sharpi* Forel

[b] Female.
[c] Male.
[d] Total of only 2 traps.
[e] Traps were not set up between October 22 and November 2, 1938.